REMARKS:

Claims 1 –11, 13 and 17-21 are pending and stand rejected.

Applicant has amended Claim 1 to add the elements and limitations of Claim 3. Claim 3 has been cancelled.

Claim 1 was also amended to more properly claim a copolymer made of monomer units – as the gradient copolymer does not comprise monomers. Claim 1 was also amended to include the gradient copolymer in the body of the claim, rather than in the preamble. The amendment is supported by the Applicant's whole Specification, which is to a gradient polymer.

It is believed that no new matter has been added by the amendments.

Response to the Examiner's response to Applicants previous arguments;

A. The Nesvadba reference is to the use of a novel initiator for controlled polymerization of homopolymers, homopolymer and copolymers. The Nesvadba reference does mention the word "gradient" once – in column 12, line 57. There is no teaching or suggestion in the Nesvadba reference of how to obtain a gradient copolymer. The copolymer Examples of Nesvadba show either pure block copolymers – when one monomer is polymerized first, and following the polymerization of one block, a second monomer is added to grow a second true block onto the first block. The only Example of Nesvadba in which the monomers are all added into the initial charge (Example 31) results in a random copolymer – and that having a Mn far below that claimed by Applicant. The Nesvadba reference not only fails to teach or suggest Applicant's combination of monomers (specific Tgs and percentages of those Tgs), producing a gradient copolymer of Mn >5,000 g/mol, it teaches away by only Exemplifying copolymer each missing at least 2 of Applicant's claim elements. (none are gradient copolymers, most have an Mn <5,000 g/mol, and many have larger levels of higher Tg monomer than the lower Tg monomer).

Moreover, there is no teaching or suggestion in the Nesvadba reference of a process to produce Applicant's gradient polymer. Without the teaching or suggestion of the process claimed by Applicant for producing a gradient copolymer, and Applicant's teaching related to the proper level of monomers above and below Tg +20°C, and the hydrophilicity requirement, one of ordinary skill in the art could not, based solely on the Nesvadba reference, pick the

proper ingredients and combine them in the proper manner to get Applicant's claimed gradient copolymer. Thus, the argument that Applicant's claims (as amended) are obvious over the Nesvadba reference, requires taking Applicant's claims as a template, and finding corresponding monomers in Nesvadba, using more of the lower Tg monomer than the higher Tg (taught in 4 examples, but against in 7 examples), to produce a copolymer with a Mn >5000 g/mol (taught in 2 examples, but taught against in 9 examples), and using these ingredients in a manner to produce a gradient copolymer (taught in 0 examples, and against in 11 examples). Thus one could argue that the Nesvadba reference mentions each of the ingredients. However, having the ingredients alone does not produce Applicant's claimed gradient polymer. In addition to picking the proper combination of ingredients, one needs the correct recipe (process) to end up with Applicant's claimed gradient copolymer – and that process is not suggested or taught by Nesvadba. Without a teaching or suggestion of the proper process, picking and choosing the right ingredients will never lead to Applicant's claimed gradient copolymer.

B. Regarding Applicant's claim that the gradient copolymer is soluble or dispersible in both water and in organic solvents, the Examiner counters by pointing to Nesvadba Col. 9., lines 62-64, stating that the polymerization may be carried out in the presence of an organic solvent, water, or mixtures thereof. Applicant's claim is not that the process can use water or organic solvent as the polymerization medium. Applicant claims that the gradient copolymer formed is soluble or dispersible in both water and organic solvent. One of ordinary skill in the art recognizes that different reaction media are used. The reaction media is often chosen for solubility or dispersibility of the monomer. There is No teaching or suggestion in the Nesvadba reference of a single copolymer that is soluble or dispersible in both water and organic solvent. The Nesvadba does list several uses for the polymers of the invention in Col. 12, line 60 to Col 13, line13. Some of these applications likely require a water-soluble polymer, and others likely require a solvent soluble polymer. But the several different uses for the many different possible combination of Nesvadba polymers, does not mean that any single polymer would have solubility in both water and organic solvents.

35 U.S.C. §103(a)

Claims 1-11, 13 and 17-21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Nesvadba et al. (U.S. Patent 6,262,206). The '206 reference fails to teach or suggest all of Applicant's claim limitations, and thus fails to present a *prima facie* case of obviousness. Specifically, the Nesvadba reference fails to teach or suggest Applicant's specifically claimed combination of a gradient copolymer, a monomer at over 50% having a Tg less than 20°C, a monomer at less than 50% of the copolymer having a Tg of greater than 20°C, and where at least one monomer representing over 5% of the copolymer is hydrophilic.

The Nesvadba reference is a general reference for using nitroso or nitrone compounds to form polymers having a narrow polydispersity. Each of the individual elements and limitations of Applicant's invention can be found buried among many other elements and limitations in the '206 reference. The structures listed include homopolymers, random copolymers, block, star and gradient copolymers (Col. 12, lines 56-58). The polymers can be made from a wide array of ethylenically unsaturated monomers, including some that would produce homopolymers with Tgs of both below and above 20°C. Somme of the monomers are hydrophilic. The listed monomers also include comonomers of acrylic acid and methacrylic acid (Col. 7, lines 25 and 27), as well as maleic anhydride, itaconic acid and fumaric acid (Col 7, lines 36-38). Example B15 of the '206 reference even shows a block (not gradient) polymer of butyl acrylate and acrylic acid. However, Applicant's unique COMBINATION of claim elements and limitations is not taught or suggested by the '206 reference.

Every element of a claimed invention may often be found in the prior art. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by applicant. *In re Kotzab,* 55 U.S.P. Q.2d 1313, 1316 (Fed. Cir. 2000)(citations omitted).

Applicant contends that the obviousness rejection in this case is a classic example of hindsight, in effect using Applicant's claims as a template on which selected bits of the prior art teachings can be assembled. This is not a proper basis for rejection of claims. "One

cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, 5 U.S.P.Q. 1596, 1600 (Fed. Cir. 1988).

Applicant's invention is in effect a selection invention of some elements that can be found in the '206 reference, though not bound by all the '206 limitations.

Applicant's invention relates to the field of amphiphilic gradient copolymers that are soluble in water as well as in organic solvents. (Specification, page 1, lines 13-15). Since the solubility of a copolymer in water and solvent was not recognized as a result to achieve in the '206 patent, the composition could not be optimized through routine experimentation to obtain such a result. The Examiner contends that the weight ratio of Components A and B is a result effective variable that can be optimized by one of skill in the art. Applicant disagrees. While the ratio of A to B can certainly be varied, there is no teaching or suggestion in the '206 reference to obtain a gradient copolymer with solubility in both water and organic solvents. Thus there is no motivation in the '206 patent to optimize the composition to obtain Applicant's results.

Summary:

1. Applicant's claimed combination involves the combination of the following key elements – said combination not being taught or suggested by the '206:

a) a gradient polymer;
b) more than 50% of at least one monomer having a Tg of less than 20°C (for the homopolymer);
c) less than 50% of at least one monomer having a Tg of over 20°C (for the homopolymer);
d) at least one of the monomers is hydrophilic and makes up at least 5% of the copolymer.

2. There is no teaching of this combination of elements and limitations in the '206 reference. (Example B15 contains 3 of the 4 elements).

3. The '206 reference does not recognize the result of a gradient polymer composition having a solubility in both water and organic solvents. This solubility is related to both monomer ratio and monomer choice. Since the '206 reference did not recognize the result to be

achieved, the variables could not be recognized as result effective for said result, and therefore cannot be optimized by routine experimentation. If the result is not recognized by the reference, no amount of experimentation can optimize for an unrecognized result.

4. The '206 reference teaches away from Applicant's claimed combination of elements.

a) Gradient copolymers are mentioned once in a laundry list of possible physical structures (Col. 12, lines 56-58), yet there is no teaching or suggestion of how gradient polymers would be useful. All Examples are either homopolymers, or involve a complete polymerization of the first block prior to the start of the second block. Indeed, Col. 13, lines 10-14 states that "once the first monomer is consumed a second monomer can be added to form a second block in a second polymerization step." There is no teaching or suggestion that a gradient polymerization requires less cycle time and produces a copolymer having excellent properties similar to the pure blocks of the '206 reference. The '206 reference only teaches away from Applicant's combination of claim limitations.

b) c) there is no teaching or suggestion to require a soft/hard block with predominantly a soft phase. The '206 reference does not even recognize advantage of a copolymer. Both homopolymers and copolymers are taught as being equally important. Random and block copolymers, and those with a variety of Tg combinations are also shown. There is nothing special taught or suggested by the '206 reference regarding Applicant's claimed combination of specific Tg monomers and specific ratios.

d) Hydrophilic monomers are mentioned in the '206 reference. However, many of the combinations – including all of those cited by the Examiner on page 4 of the Office action, are block copolymers not having any hydrophilic monomer. The copolymer combinations of the '206 reference teach away from Applicant's claims, and certainly do not teach or suggest anything special about Applicant's specific Combination of elements.

In view of the above, the Applicant believes that the reasons for rejection have been overcome, and the claims herein should be allowable to the Applicant. Accordingly, reconsideration and allowance are requested.

Respectfully submitted;

Thomas F. Roland, Esq.
Attorney for the Applicants
Reg. No. 42,110

Date: 5/27/08

Customer Number 31684